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ABSTRACT

Quality of performance feedback provided an individual may have pronounced impact on his motivation level and be at least partly responsible for social facilitation results. Male students (N=118) performed a dart-throwing task in the presence or absence of a three-person evaluative audience. After each of seven trials they received consistently positive, average, or negative performance feedback. Results showed a social facilitation effect of audience presence and initially facilitated performance under average feedback, but no interactions. Post-performance mood questionnaires suggest that separate mechanisms could mediate performance under each of the three feedback conditions. (Author)

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SOCIAL FACILITATION:

EFFECTS OF AUDIENCE AND MANIPULATED FEEDBACK

ON PERFORMANCE

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Introduction

Early research designed to delineate the conditions under which the performance of individuals is enhanced or inhibited when others are present has advanced contradictory results. Zajonc (1965) offered a resolution of these inconsistent results by stating that the mere presence of others increases an individual's general drive level and facilitates dominant responding at the expense of subordinate responses. However, subsequent study has found fault with the conception that the mere presence of spectators or coactors is sufficient to cause a social facilitation effect. That the presence of others is a learned source of drive was proposed by Cottrell, Wack, Sekerak, and Rittle (1968) who employed a pseudorecognition task sensitive to dominant and subordinate responding. Cottrell maintained that the prerequisite for facilitation of an individual's performance is his learned anticipation of positive or negative outcomes. As this anticipation is possible only when the potentiality for evaluation is present, other researchers (Henchy and Glass, 1968; and Paulus and Murdoch, 1971) studied the effects of withholding evaluation of an individual's performance. Findings generally supported the position that apprehension of evaluation is a necessary condition for social facilitation.

Every performance situation plausibly contains some element of evaluation; more important to the source of the social facilitation phenomenon is explication of the exact nature of the evaluation. Manipulating direct evaluation, indirect evaluation (coactors separated but provided with own and coactor's scores), and mere presence of coactors with no potential for evaluation, Martens and Landers

(1972) found that greatest enhancement of dominant responses occurred under direct evaluation, and to a lesser extent under indirect evaluation. Wake, Vukelich, and Kaplan (1973) contended that providing a coactor's score may be sufficient to obtain the same behavior increase that occurs in the presence of coactors. However, the feedback provided subjects in these studies was accurate knowledge of results, essentially uncontrolled with regard to its cognitive effect. Lucas (1952) and Sarason (1956) provided evidence from a non-social manipulation of anxiety, motivation, and failure that extreme negative feedback leads to performance decrements as the individual becomes aware of his failure with respect to others. "In terms of the conception of an optimal facilitative drive level," according to Sarason, "the failure reports can be viewed as increasing the general drive level of all failed groups beyond the optimal point p. 259 ."

If Sarason is correct, there exist differential effects for the exact type of evaluation present in a situation where one individual is compared with others. In order to quantify the effects of different types of feedback relative to an individual's peers, the present study contains three levels of feedback-- positive, negative, and neutral or average feedback. Since an evaluative component is constant throughout conditions, no differences in performance would be predicted if simply apprehension of evaluation causes a social facilitation effect. However, if the presence of an audience contains a component which contributes to the effect, or the effect is dependent on the exact nature of the feedback provided, we anticipate evidence of differential performance.

Method

Subjects were 118 male Introductory and General Psychology students at the University of Notre Dame, participating for 1 extra course credit. On a random basis they were assigned approximately equally into each of six conditions. The between-subjects portion of the design was a 2 x 3 factorial consisting of 3 levels of feedback-- positive, negative, and average, and presence vs. absence of a 3-person evaluating audience of students. These spectators were described as assistants to the experimenter who were engaged in tabulating scores as well as quietly observing the subject's performance.

A dart-throwing task provided dependent measure of motor performance; subjects threw 7 sets (the within factor, trials) of 10 darts at a standard dart board from a distance of 10 feet. Concentric rings spaced at 3.5 cm. on the board were labeled from 10 through 0 to -10 in increments of 1. In all conditions, the experimenter recorded the scores for the subject's 10 throws but was absent from the room while the subject was performing.

Levels of feedback were manipulated in the following manner: after each trial block, the experimenter recorded and reported audibly the subject's score based on a maximum of 100 points. Then he consulted a table of values and reported an alleged mean score for all prior subjects on that particular trial. In the average feedback conditions, this reported mean score differed from the subject's true score only by a random variance factor of between $\pm.9$ and ±2.4. In the negative feedback conditions, the experimenter reported a mean score which was higher than the

subject's true score by approximately 50% of the difference between his score and 100. The reported mean in the positive feedback conditions was the same amount lower that the subject's true score. These computed values were altered similarly by the variance factors in all conditions.

After the performance task, subjects were asked for a subjective comparison of their performance to that of others as a manipulation check. Subjects then answered a questionnaire which assessed their feelings of frustration, arousal, complacency, happiness, and nervousness. In addition, subjects indicated the extent to which they felt affected by spectators, comparison of their scores with others', the experimenter's evaluation, and how much they liked feedback on their performance.

Results

Covariance: Differences in feedback conditions on the first trial (before the first feedback was given) suggested an uneven distribution of dart-throwing akill across conditions. Therefore the last 6 of the 7 trials and their transformations were covaried by the first. Over trials, the regression of the mean was significant ($F=60.23$, 1/111, $p < .001$) as was the linear trend ($F=15.73$, 1/111, $p < .001$).

Performance: As one might expect, overall performance increased with practice over trials from 66 points on the first to 72 points on the last (linear $F=18.27$, 1/111, $p < .001$) and most of the change occurred from the first to the second trial (70 points).

Dart throwers performing in the presence of an audience averaged 73 points while those alone in the testing room averaged only 70 ($F=4.49$, 1/111, p .04).

Feedback also had influence on performance, but in a surprising way (see figure 1). Positive and negative feedback produced precisely the same effects on performance (F 1). In contrast, neutral (or average) feedback enhanced performance in the first block of 3 trials ($F=4.73$, 1/111, p .04) but dropped to the level of positive and negative feedback groups in the second block (convergence interaction $F=5.64$, 1/111, p .02) where the 3 conditions did not differ (F 1).

Post performance assessments: The manipulation check for the feedback conditions was very effective. When comparing themselves to others' past performance (#1, table 1), positive feedback subjects saw themselves throwing considerably better than the others; the reverse held for the negative feedback groups ($F=160.31$, 1/112, p .001). This feedback effect was considerably less pronounced for subjects with an audience than for those performing alone ($F=6.70$, 2/112, p .002). Perhaps the audience presence expands the subject's self-judgement reference scale, or simply makes him more reluctant to accept the experimenter's unexpected evaluations. In contrast to negative feedback groups, positive feedback subjects liked the comparisons and felt that feedback and spectators enhanced performance (see table 1). The average feedback group always fell intermediate to the other two.

Discussion

Significantly higher performance in conditions where spectators were present, demonstrated by a main effect for audience presence, lends support to Zajonc's contention that the presence of others increases dominant responding. Because all subjects anticipated evaluation of their performance, the facilitation experienced in the audience conditions parallels results of Martens and Landers (1972) and suggests that the presence of others provides cues that supplement the effects of evaluation apprehension.

Surprisingly, effects of negative feedback were not significantly different from those of positive feedback, while subjects in average feedback conditions exhibited somewhat greater initial increments in performance. This facilitation was no longer evident after the third trial-- performance returned to the level of positive and negative feedback conditions and thereafter was similarly characterized by only uniform gradual incrementation.

Although it seems plausible that one intervening variable was operating in both the positive and negative feedback conditions, questionnaire data indicate the likelihood that more than one factor was affecting performance. While performance was similar in these two conditions, assessments of the affective states of the performers were often widely disparate (see table 1). And in all such cases, subjects in the neutral feedback condition provided responses intermediate to those of the positive and negative groups while, at least in this first half of the trials, neutral feedback was superior to both. Perhaps the labeling of "average"

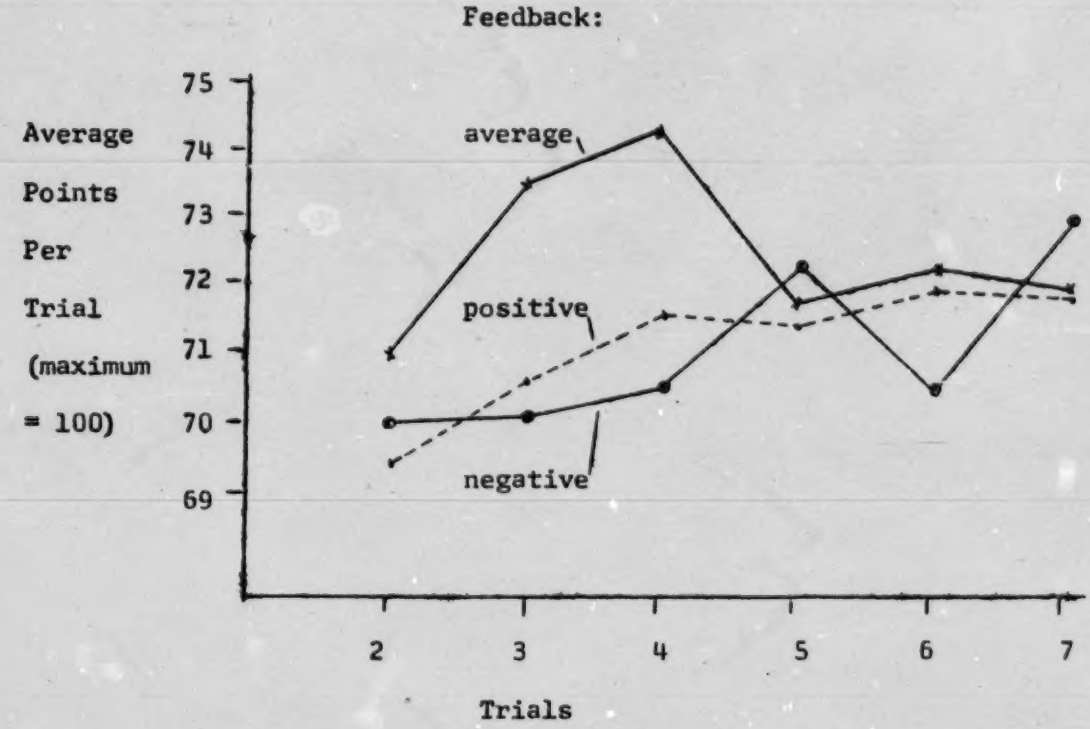
is aversive to an individual and a need for uniqueness operates to increase motivation level and consequently performance. As subjects' scores continued to be reported as quite average, it is possible that emotional complacency set in and led to the drop in performance seen in figure 1.

Alternatively, the possibility exists that both positive and negative feedback were inhibiting to performance but through different mechanisms. Subjects given positive feedback may have lacked the incentive of those given neutral feedback and may have been satisfied to approach the task casually. Those in the negative feedback conditions probably perceived little chance of attaining the reported mean scores because of their consistent inferiority. Performance by these subjects may also have been characterized by low motivation and despair. This form of negative feedback clearly did not provide the "optimal facilitative drive level" to which Sarason referred. As with Sarason's failure reports, the magnitude of the negative evaluation may have been too extreme--serving only to depress performance. Conceivably, a breakdown of negative feedback into several smaller magnitudes would identify a facilitative level equal or superior in effect to the provision of average feedback. Indeed, variable effects of different levels of positive feedback are equally possible, as is discovery of a similarly optimal level.

A problem with accurate interpretation of the effects of feedback is the lack of a baseline for comparison with positive, negative, and neutral feedback. The introduction of a no-feedback cell that nonetheless maintains an apprehension of evaluation

might serve as such a baseline. The effect of an audience within a no-feedback evaluation condition might explicate the possible interaction of feedback and audience influence and clarify the function of feedback in the phenomenon of social facilitation.

Figure 1: Dart-throwing performance as a function of feedback and trials.



Note: The points graphed are the means adjusted by the covariance of each trial separately by the initial trial. Regression for each covaried trial was significant but as might be expected the strength of the regression decreased over trials.

Table 1

Post Performance Response	Feedback Conditions (-)	(0)	(+)	F (df=1/112)	p
1. Felt performance better in comparison with past Ss (5 point scale)	2.2	3.0	3.7	160.31	.001
2. E's scoring of trials helped performance (15 point scale)	7.5	8.0	9.2	15.72	.001
3. Comparison with others' scores helped performance (15)	9.3	10.6	11.0	5.82	.02
4. Liked feedback on performance (15)	9.8	11.0	11.6	6.06	.02
5. Feel frustrated (5)	2.2	1.9	1.7	7.81	.01
6. Presence of others enhances performance (15)	7.8	9.0	9.8	6.79	.01